

No. 636,534.

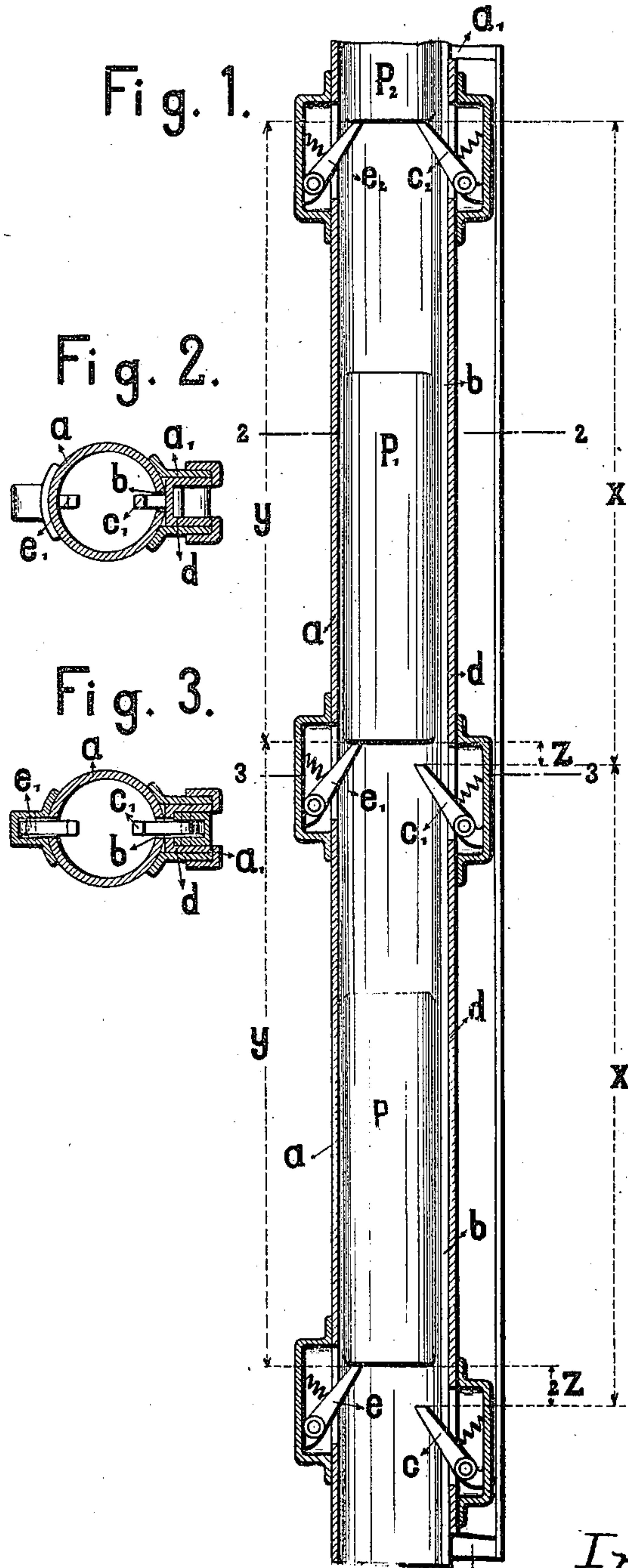
Patented Nov. 7, 1899.

J. KRONE.

AMMUNITION HOIST FOR VESSELS OF WAR.

(Application filed Aug. 24, 1899.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHANNES KRONE, OF ESSEN, GERMANY, ASSIGNOR TO FRIED. KRUPP,
OF SAME PLACE.

AMMUNITION-HOIST FOR VESSELS OF WAR.

SPECIFICATION forming part of Letters Patent No. 636,534, dated November 7, 1899.

Application filed August 24, 1899. Serial No. 728,289. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES KRONE, a citizen of the German Empire, residing at Essen-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Ammunition-Hoists for Vessels of War, Armored Turrets, &c., of which the following is a specification.

This invention refers to a modification of the improved ammunition-hoist for vessels of war, armored turrets, &c., covered by United States Letters Patent No. 624,826, granted to me May 9, 1899. In the ammunition-hoist shown and described in said patent the several lifting-pawls are placed equal distances apart, about equal to the length of the stroke of the lifting-rod, so that as soon as the guide-shaft is filled with cartridges or the like all of the cartridges are simultaneously picked up by the lifting-pawls and also simultaneously deposited upon the supporting-pawls. The jar caused by thus suddenly starting or releasing a number of heavy weights is particularly injurious to electric motors, but is also injurious to all other means of supplying power, and the evil effect increases with the number of cartridges within the shaft respectively with the height to which the cartridges are to be raised. To remedy this, I space the pawls at different distances, so that the cartridges are started one after the other and deposited in the same manner upon the supporting-pawls.

My invention will be best understood by reference to the annexed drawings, in which—

Figure 1 is a vertical section through the hoist. Fig. 2 is a horizontal section on the line 2 2, Fig. 1. Fig. 3 is a horizontal section on the line 3 3, Fig. 1.

Similar letters refer to corresponding parts throughout the several views.

In the drawings, the letter *a* designates the guide-tube for the ammunition, said guide-tube being provided with a longitudinal slot *b*.

d is the lifting-rod, carrying the spring lifting-pawls *c c' c²*, projecting into the guide-tube *a* through the slot *b*. The lifting-rod *d* is guided in ways *a'* and has reciprocating motion imparted by any suitable means—such, for instance, as are fully described in United States Letters Patent No. 624,826,

above referred to, and which means form no part of the present invention.

e e' e² are supporting spring-pawls located on the side of the guide-tube *a* opposite the slot *b* and projecting into the tube through slots. The supporting spring-pawls *ee' e²* are placed at equal distances apart, as are also the lifting spring-pawls *c c' c²*; but the distance *x* between any two lifting-pawls is greater than the distance *y* between any two supporting-pawls by a length *z*.

P P' P² are cartridges.

The operation of the lift is as follows: Assuming the lifting-rod to be at the commencement of the upward stroke, as shown in Fig. 1, the upper cartridge *P²* is first picked up by the lifting-pawl *c²*, the remaining cartridges in the shaft still resting upon the supporting-pawls and the lowest cartridge still remaining on the table. (Not shown in the drawings.) After the lifting-rod has traveled upward a distance *z* the lifting-pawl *c'* picks up the cartridge *P'*. After a total rise *2 z* the pawl *c* picks up the cartridge *P*, and after a total rise *3 z* the cartridge resting on the table is picked up. After this all of the cartridges are lifted together a farther distance *y*, the total throw of the lifting-rod being *y+3 z*, respectively, *y+n z*, where *n* equals the number of supporting-pawls, (not including the table.) On the return stroke of the lifting-rod the cartridges are placed upon the supporting-pawls in regular succession. Thus the above-mentioned result is produced, the motor is gradually loaded and unloaded, and the evil effect of the impact is reduced as much as possible. For obtaining this result it is not absolutely necessary that *x* should be larger than *y*. It might be smaller, when the lowest cartridge (on the table) would be first picked up. Nor is it indispensable that the distances of the successive supporting-pawls should be equal or that of the successive lifting-pawls. All that is required is that the respective distances should be such that whenever one pair of pawls (a lifting-pawl and a corresponding supporting-pawl) are at the same level the pawls of each of the remaining pairs should be at different levels.

What I claim as new is—

In an ammunition-hoist of the character

specified, a series of spring-pawls connected
to the lifting-rod, and a series of correspond-
ingsupportingspring-pawls arranged in pairs
and so spaced, that while any one cartridge
5 is picked up, the remaining lifting-pawls are
at different distances from the tops of the re-
spective supporting-pawls, whereby one car-
tridge is picked up after another and depos-
ited upon the corresponding supporting-pawl

in the same manner, substantially as speci- 10
fied.

In testimony whereof I have hereunto set
my hand in the presence of two subscribing
witnesses.

JOHANNES KRONE.

Witnesses:

WILLIAM ESSENWEIN,
GEO. P. PETTIT.